

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
dTC424
.13V592



United States
Department of
Agriculture

Soil
Conservation
Service



Champaign
Illinois

Department of
Transportation
Division of
Water Resources

Illinois



FLOODPLAIN MANAGEMENT RECONNAISSANCE STUDY REPORT

EASTON MASON COUNTY



AD-33 Bookplate
(1-48)

NATIONAL

**A
G
R
I
C
U
L
T
U
R
A
L**



LIBRARY

VILLAGE OF EASTON

MASON COUNTY, ILLINOIS

FLOODPLAIN MANAGEMENT

RECONNAISSANCE STUDY

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

SEP 30 1987

CATALOGING = PREP.

Prepared by

US DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Champaign, Illinois

In cooperation with

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

DIVISION OF WATER RESOURCES

JULY 1986

TABLE OF CONTENTS

PAGE

INTRODUCTION	1
STUDY AREA DESCRIPTION	2
NATURAL VALUES	3
FLOOD PROBLEMS	4
PROBLEM SUMMARY	5
EXISTING FLOODPLAIN MANAGEMENT	6
RECOMMENDATIONS	7
INVESTIGATION AND ANALYSIS	9
VICINITY MAP	
FLOODPLAIN MAP	



VILLAGE OF EASTON
RECONNAISSANCE STUDY
INTRODUCTION

Use of floodprone areas can be a severe problem in Illinois. Urbanization and floodplain encroachment are increasing the severity of this problem. Over 800 communities in Illinois have been identified as having flood problems.

The Illinois Division of Water Resources (DWR) is the responsible state agency for urban flood control and for setting priorities of flood studies within urban areas. The Soil Conservation Service is providing assistance to the Division of Water Resources in setting these priorities. A joint coordination agreement was executed between the Division of Water Resources, State of Illinois, and the USDA, Soil Conservation Service on April 30, 1976 and revised in December 1978 to furnish technical assistance in carrying out Flood Hazard Studies. These studies are carried out in accordance with Federal Level Recommendation 3 of "A Unified National Program for Floodplain Management", and under Section 6 of Public Law 83-566. A plan of study was executed in October 1985 for reconnaissance studies for 10 Illinois communities. These reconnaissance studies will utilize existing floodplain information, historical high water profiles, and the 100 year floodplain from flood insurance studies when available. Average annual damages are estimated for the structures within the floodplain.

The study was conducted and the report provided to: 1) evaluate needs for additional future studies, 2) estimate average annual damages, 3) provide an updated estimate of the 100 year floodplain map, and 4) provide guidance and recommendations to the community for improved floodplain management.



STUDY AREA DESCRIPTION

The Village of Easton is located in central Mason County, Illinois, about 17 miles east and south of Havana, Illinois. The population of Easton is 392 according to the 1980 census.

The transportation facility in the area is Illinois State Highway #10. A blacktop road and gravel road network connects the smaller villages and rural areas to the Village of Easton.

The Samuels Ditch Drainage area starts approximately 4 miles upstream from the Village of Easton and flows in a northwesterly direction towards Easton. It bypasses the village on its southwest side and flows into Crane Creek, 1.5 miles west of the community. The drainage area of Samuels Ditch is 3.8 square miles and is in the lower Sangamon River Basin, hydrologic unit #07130008, Crane Creek subwatershed #060.

The land use in the drainage area around Easton is mainly cropland, with corn and soybeans as the main crops. There is a center pivot irrigation system northeast of the Village. The cropland is still farmed primarily using conventional tillage. The drainage area around Easton is very flat, while the upper end of the Samuels Ditch area is very steep with some woodland and grassland present. There are some terrace systems on the cropland in the steeper areas of this watershed.

The average rainfall is 36 inches per year. Annual snowfall is 20 inches per year.

The soils in the area of Easton are of the Plano-Elburn-Thorp association. These soils are well to poorly drained, on nearly level to moderately sloping topography. They are silt loams that were developed in 3 1/2 to 5 feet of silty wind-deposited material (loess) or water-deposited material (outwash) over layers of loam and sandy loam material. These soils have a high to moderate organic matter content, high available water capacity, and moderate to slow permeability. These soils are not well suited for urban uses or sanitary facilities because they are subject to ponding, have a periodic high water table, have unstable layers below 3 feet, and have porous material below 4 feet. They are suitable for most crops grown in the county, but may need some drainage of ponding areas or erosion protection on the moderately sloping areas.

The village has a good water supply from wells. The village has a sewage treatment lagoon located west of the village, with apparently no septic systems remaining in the community.

NATURAL VALUES

The Samuels Ditch drainage area has ample opportunity for wildlife in its upper reaches, but in the vicinity of Easton it is very limited since most of the area around Easton is cropland with mainly a corn and soybeans rotation. Wildlife cover is at a minimum, with exception of portions of the abandoned railroad line that has not already reverted to cropland or urban usage. Conventional tillage is the main method of farming. Utilizing more conservation tillage, ridge till, or no-till would provide more cover for small game. This, in addition to preserving roadside ditches and abandoned railroad right-of-ways, would support more wildlife and plant varieties to make this a better place to live, work and play.



FLOOD PROBLEMS

Samuels Ditch passes by the Village of Easton on the south and southwest corners of the village. Most of the village drains toward Samuels Ditch. The village has a storm sewer network, but with the flat topography it is slow draining, and at times overland flow is the mode of drainage. The inlets to some of the village's storm sewers are not always located at the low point of the street and a certain amount of flooding occurs before the water can enter the storm sewer.

Illinois State Highway #10 on the east side of the village has small surface ditches that, according to village residents, drain toward the village with no apparent outlet in the village. This added stormwater will either pond along the highway or follow the village's surface drainageways and storm sewers. There is ponding on Highway #10 from Hayes Street to Elm Street from overland flows draining toward the storm drain to Samuels Ditch.

The main water-related problem in Easton is wet basements. Local residents say that almost every house with a basement has a moisture problem and will use sump pumps and other methods to control it. The soils in the area have a periodic high water table and the subsoils have unstable or porous layers that are not well suited for houses with basements. The topography is nearly level in most areas of the village with some areas that pond and drain off slowly. An estimate of the houses and trailers in Easton indicated 170, of which 106 appeared to have a basement. An assumption was made that approximately 90% or 94 houses would have a wetness problem.

The mayor indicated that only 2 or 3 houses have a sewer backup problem.

These are located in the south end of town between Second and Third Streets.

There is an additional problem of the village's lift station flooding in the southwest part of town.

There is a fertilizer storage building east of town, outside the corporate limits, that floods. There is overland flooding across Highway #10 north of the village that flows toward Crane Creek to the west. Neither of these flooding problems were quantified and they are not included in the problem summary of average annual damages that follows.

There has been very little new home construction in Easton in the past few years and that condition will probably continue. No large growth potential is foreseen in the near future, and the population should remain about the same as the present for the next few years. State Highway #10 is scheduled for widening and resurfacing beginning at the east village limits and proceeding to the east.

PROBLEM SUMMARY

Estimated average annual damages to the Village of Easton are listed below:

<u>Type</u>	<u>Number</u>	<u>Total Value</u>	Average
			<u>Annual Damages</u>
Houses, trailer, a/c units	51	\$1,255,000	\$6,800
Garages/sheds	58	193,000	1,100
Businesses	<u>24</u>	<u>552,000</u>	<u>3,300</u>
Total	133	\$2,000,000	\$11,200

Additional Problems due to wetness:

Wet basements - 94 @ \$50	4,700
Street and storm sewer repair	<u>5,100</u>
Total	9,800

Total estimated average annual damages for Easton = \$21,000

Flood damages start at the 25 year (4% chance) frequency storm.

EXISTING FLOODPLAIN MANAGEMENT

The Village of Easton has not participated in the National Flood Insurance Program and no maps are available that delineate the floodplain for Easton.

The map in this report can be used for that purpose. The Village does have a basic zoning ordinance.

RECOMMENDATIONS

It is recommended that the Village of Easton participate in the National Flood Insurance Program.

The village should continue to improve the inlets to their storm sewer so that the inlets are located at the low point of the streets.

The village should do a study of their internal drainage network and the outlets to their drainage systems. Additional storm sewers and open surface drainage systems combined with better outlet drainage systems to take stormwater away from the village would improve the flood flows through the community.

The village should work with the State Division of Highways to improve the drainage along State Highway #10. This would help to alleviate ponding on the highway as well.

Because of the periodic high water table and unstable or porous subsoils in most of Easton, the village should regulate or restrict the construction of crawl spaces, one-half, and/or full basements in the area where these conditions exist.

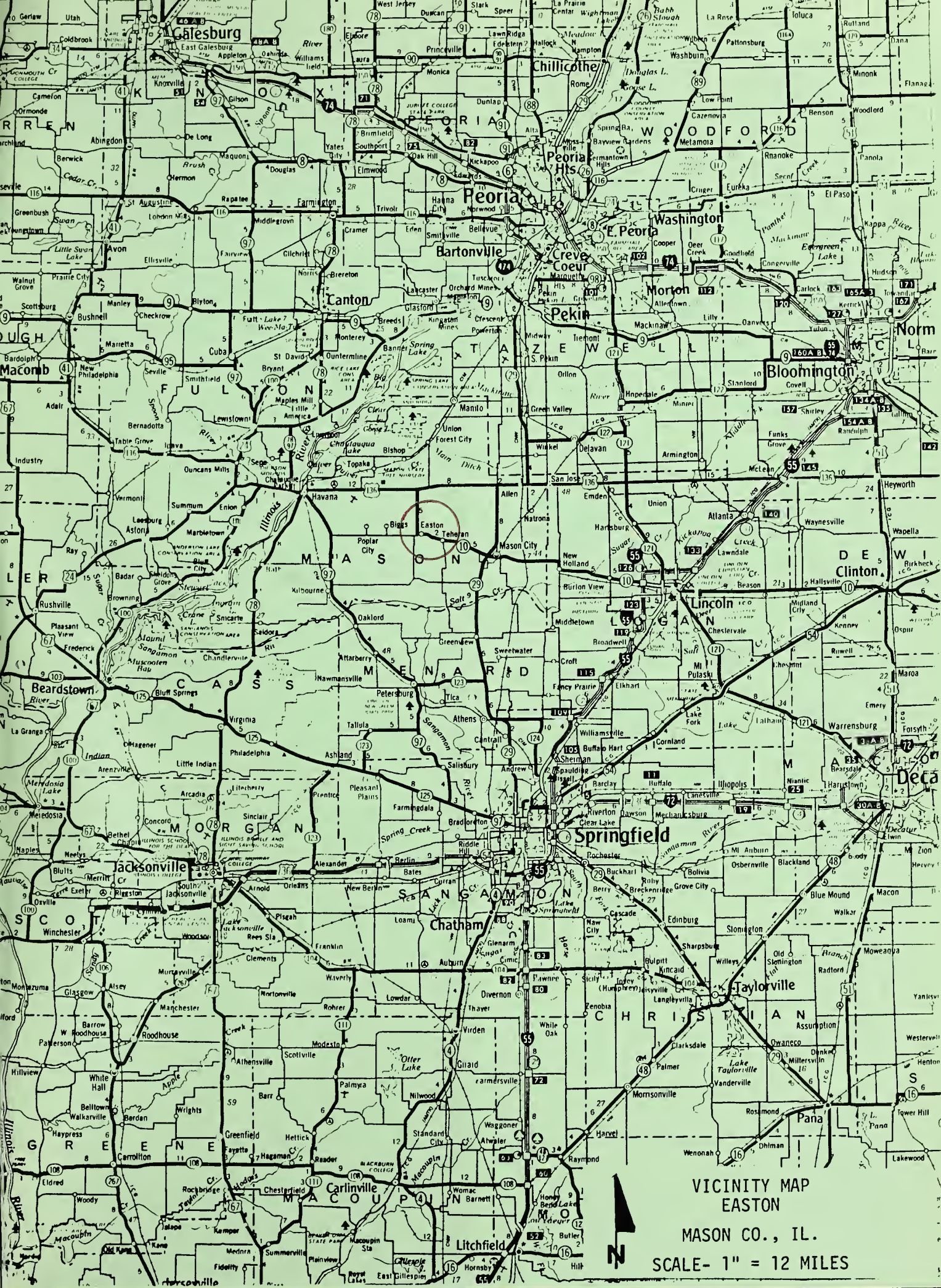
Those homes that have had a problem with sewer "back up" should install a backwater check valve system to prevent this from happening. Information on these devices may be obtained from the Illinois Department of Transportation, Division of Water Resources booklet, "Protect Your Home from Flood Damage". Contact the Illinois Division of Water Resources, 310 South Michigan Avenue, Room 1606, Chicago, Illinois 60604.

Since the majority of the water problem is associated with poor internal drainage and uncontrolled overland flow from the cropped area, there is limited potential for the development of a flood control program. Assistance provided through the SWCD would be more applicable to solving overland flow. This would preclude the need for a more detailed study of the flooding problem and a low priority should be placed for this type of study.

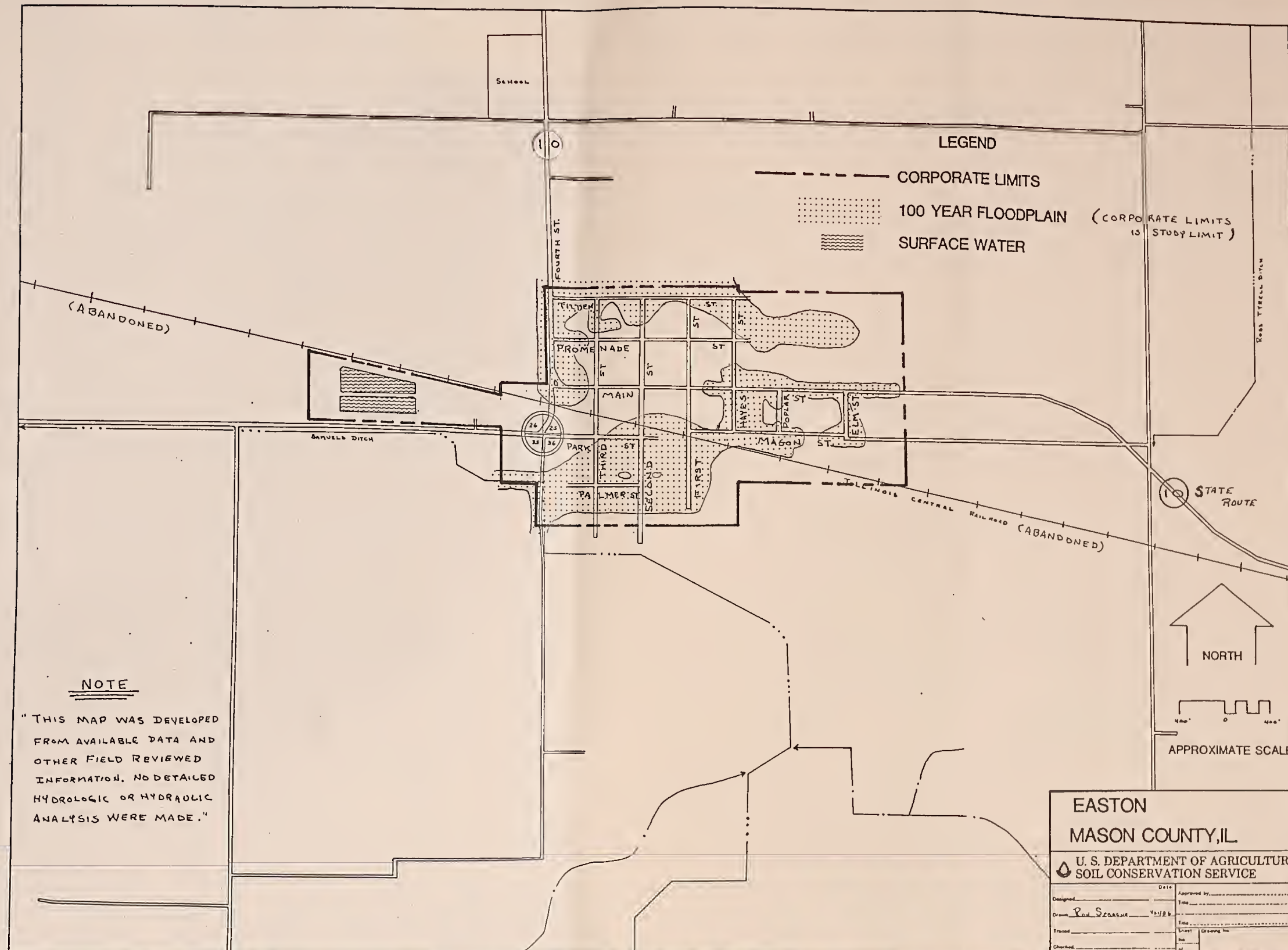
INVESTIGATION AND ANALYSIS

No additional calculations, discharges, or profiles were made as a part of this study. The inventory of flooding and water problems is based on a field review and interviews with local citizens. Interviews with local citizens were used to determine the 100-year floodplain. Aerial photographs were provided by DWR. Damages were based on property value estimates during field review, and the application of damage factors. These factors came from previous detailed floodplain management studies.

RAB:ENG8:13



VICINITY MAP
EASTON
MASON CO., IL.
SCALE- 1" = 12 MILES







R0001 133725

an



R0001 133725